Murray & Roberts Chair for Construction Engineering and Management

Department of Civil Engineering
Stellenbosch University

Prof Jan Wium
Table of Contents

• CEM history at Stellenbosch
• Field of CEM
• Academic offering
• Research
• Staff and numbers
• CMP
CEM History at Stellenbosch

• Department of Civil Engineering (1945)
  – Structural Engineering
  – Transportation Engineering
  – Water Engineering

• CEM Chair established in January 2010
  – Murray & Roberts sponsorship
  – Module in final year under graduate
  – Graduate program
The field of Construction Engineering and Management
Academic environment
Academic offering (CEM)

Stellenbosch University/Engineering Faculty

Civil Engineering Academic Programme

Undergraduate
- 4th year Civil Engineering (Eng. Management)

Industry & Inter-Tertiary Programme
- CMP
  - Leaders in Industry
  - 10-15 years experience

Post Graduate
- Engineers (MEng, PhD)
- Allied Professionals (PDE and future MPhil)
Post graduate students: program aims

<table>
<thead>
<tr>
<th>Problem solving</th>
<th>Exposure to practice</th>
<th>Beyond the normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Thesis</td>
<td>• Work in practice</td>
<td>• International exposure</td>
</tr>
<tr>
<td>• Monthly: problem identification, steps, solutions</td>
<td>• Interaction with MEng</td>
<td>• <em>Multi-disciplinary group work</em></td>
</tr>
</tbody>
</table>
Post graduate courses

• In collaboration with :
  – Department of Industrial Engineering
  – Collaborators (industry, University of Cape Town, Bauhaus University, UWC, others)
  – Stellenbosch University Business School
# Post graduate Courses & course components

<table>
<thead>
<tr>
<th></th>
<th>Client</th>
<th>Designer</th>
<th>Contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic &amp; System management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Project management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Financial &amp; Economic management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Construction contract law</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Construction risk management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Project procurement (+PPP)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Construction management : Design; Production &amp; Construction</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Infrastructure asset management</td>
<td>✓</td>
<td>✓</td>
<td>≈</td>
</tr>
<tr>
<td><strong>Marketing Management</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td><strong>Human Resources</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tbody>
</table>
Research

LARGE PROJECTS

Modular construction
- Skills
- Visualisation
- Perceptions
- Contractual

Construction risk management
- Survey: Common risks for South Africa
- Simplified techniques
- Secondary impact of change

Design management
- Constructability
- Interfaces required/BIM

Infrastructure Management
- Existing systems
- Reasons for failure
- New approaches
Research and funding

• Scholarships for full time studies
  – (8 – 10 MEng):

• Research topics in collaboration with sponsors

• Students spend time in industry (2 months)
Staff and Student numbers (total per year)

- Staff (full time):
  - Prof JA Wium
  - Mr CJ Nel/Mrs A Loots (1/5)
  - Ms H Bosman (PA)

<table>
<thead>
<tr>
<th>Year</th>
<th>MEng</th>
<th>PhD</th>
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<tbody>
<tr>
<td>2010</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>2011</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>2012</td>
<td>28</td>
<td>3</td>
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</table>
CMP
(Construction Management Program)

• Middle management programme for Engineers & other related practitioners
• Annual: 4 weeks intensive course
• Participants: 10-15 years experience
• Since 1976 (bi-annually) (annually since 2007)
• Director Prof Fred Hugo handed over to Prof Wium (2012)
CMP Course content

- Financial
- Contracts
- Strategy
- Diagnostics
- Communication
- Group work
- ......

- Synthesis
Stellenbosch University

The End